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ABSTRACT

This manual presents a training methodology for use in changing pivotal behaviors of children with autism or other severe handicaps. Behaviors specifically addressed for their far ranging effects involve motivation and responsivity to multiple cues. Seven instructional points are detailed with both good and poor implementation examples. The manual stresses that the question, instruction, or opportunity to respond should: (1) be clear, uninterrupted, and appropriate to the task; (2) be interspersed with maintenance tasks; (3) be chosen by the child; and (4) include multiple components. Also encouraged are reinforcers that are contingent upon the behavior, administered following any attempts to respond, and related to the desired behavior. A partial workbook format encourages the reader to identify appropriate personal applications of each training technique. Includes 16 references. (DB)

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How to Teach Pivotal Behaviors to Children With Autism: A Training Manual

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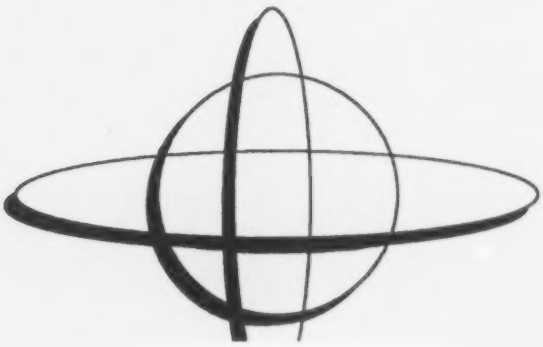

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HOW TO TEACH PIVOTAL BEHAVIORS TO CHILDREN WITH AUTISM:

A TRAINING MANUAL

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Copies of this manual are available for $3.00 (postage and handling). Please send requests to Laura Schreibman, Ph.D., Department of Psychology, C-009, University of California, San Diego, La Jolla, CA 92093 or to Robert L. Koegel, Ph.D., Department of Speech and Hearing Sciences, University of California, Santa Barbara, Santa Barbara, CA 93106.

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Who Should Use This Manual

This manual was designed to have applicability to a broad range of people. The examples in the manual focus on family interactions between individuals with autism and their parents and siblings. Such examples were used because they illustrate the community applicability of the procedures. However, the original research was conducted with university students, speech therapists and teachers who were working with very severely handicapped nonverbal children with autism. Subsequent research has since been conducted with older children and adults with handicaps who were both verbal and nonverbal. Their treatment providers have ranged from parents to teachers to psychologists, pediatricians, and social workers, etc. Thus, we anticipate use for this manual should be valuable for students, teachers, speech therapists, psychologists, siblings, peers and others who interact with individuals with autism and other severe handicaps across a wide variety of ages and functioning levels. The target behaviors expected to change the most are: speech and language, social behavior, and disruptive responding. However, as the examples in the manual illustrate, numerous behaviors would be expected to be affected.

FIELD-TEST PROCEDURES AND RESULTS

The present manual is based upon a series of published empirical investigations (see Koegel, O'Dell, & Koegel, 1987; Koegel, O'Dell, & Dunlap, 1988; Laski, Charlop, & Schreibman, 1988). In addition, this manual has directly undergone a series of reviews in order to help assure that the procedures are readily usable and applicable to a wide range of populations. The various phases of the field testing were as follows. First, the manual was reviewed in-house. This was accomplished by providing the manual to five people from our universities, who did not participate in the writing. Following their reading, feedback was given and revisions were made. Next, they utilized the techniques they had learned from the booklet with a child with autism. In order to assess whether the techniques were learned by the clinicians, a Fidelity of Implementation scoring system was designed and the performance of each clinician was scored. The following categories were assessed for fidelity:

(1) The instruction had to be clear, appropriate to the task, uninterrupted, and the child had to be attending to the therapist or task;

(2) Maintenance tasks needed to be interspersed frequently;

(3) Multiple cues needed to be presented if appropriate for the child's developmental level;

(4) The child needed to be given a significant role in choosing the stimulus item(s);

(5) Rewards needed to be immediate, contingent, uninterrupted, and effective;

(6) Direct reinforcers needed to be used the majority of the time; and

(7) Rewards needed to be contingent on response attempts.

In order to score the above categories, a ten-minute videotape was obtained from each child-clinician dyad. From that videotape, five two-minute intervals were scored as either "yes" or "no" to each of the seven categories above. In order to be considered "trained", the clinician had to score "yes" on at least four of the five intervals (80%) for each category.

During the first phase of the field-testing, areas that did not meet the training criteria were discussed with the clinicians and their feedback relating to ease of implementation was obtained. This information was incorporated and further revisions were made in the manual.

The second phase of the field-testing involved an outside review. This was accomplished by giving copies of the manual to five

professionals who held doctorate degrees in psychology, special education, or speech and hearing sciences along with extensive experience involving direct treatment of children with mild to severe disabilities. Additional revisions of the manual were made following their feedback.

Finally, the third and last phase, a community review of the manual was obtained. This involved distributing the manual to fifteen community members who had requested information from us relating to teaching language skills to children with autism or other related severe disabilities. These community members consisted of seven parents and eight professionals who presently had children with whom they could apply the procedures. Following their reading of the manual they were contacted for feedback. They then used the procedures with their children and were again contacted for feedback. All feedback from the community members was considered and incorporated into further revisions. Additionally, videotapes were made of four randomly-selected individuals working with their children, and were scored for fidelity of implementation according to the categories and scoring system described above. All four individuals scored 80 percent or above on each of the seven categories indicating that they had all successfully learned the procedures, and were able to implement them correctly.

As a result, we expect relatively wide applicability and effectiveness of this manual. However, should readers develop further questions (or have positive comments) as they attempt to utilize this manual, we would appreciate written comments, addressed to Robert Koegel, Department of Speech and Hearing Sciences, University of California, Santa Barbara, California 93106 or to Laura Schreibman, Department of Psychology, University of California, San Diego, La Jolla, CA 92093.

INTRODUCTION

The purpose of this manual is to train individuals who interact with children with autism and other severe handicaps, to provide treatment that is easy to implement and readily usable in community settings. Our original work (Koegel, O'Dell and Koegel, 1987) focused on nonverbal children and resulted in dramatic increases in their vocabularies. Many of these children who participated in our early work demonstrated numerous inappropriate and disruptive behaviors, which seem to be directly related to the teaching conditions and their lack of communicative skills. Thus, the procedures described in this manual also greatly reduce disruptive behaviors. More recently, we have included higher level children. However, all of the principles are the same regardless of the present functioning level of your child. Thus, we recommend these procedures be applied to all children. Various examples have been included so that this manual will be helpful to a broad spectrum of children. As you read through the examples, try to think of how you might adapt the principles for your own particular child.

Since most children with severe handicaps need to receive treatment for many behaviors it is essential to identify target behaviors for treatment that will produce simultaneous changes in many other behaviors instead of having to treat each individual behavior one at a time — a task that would be prohibitively time consuming. Therefore the purpose of this manual is to describe a set of training procedures to teach important pivotal behaviors to children with autism. By "pivotal behaviors" we mean behaviors that seem to be central to wide areas of functioning. Positive changes in pivotal behaviors should have widespread positive effects on many other behaviors and therefore constitute an efficient way to produce generalized improvements in the behavior of children with autism.

The pivotal behaviors addressed in this manual are **motivation** and **responsivity to multiple cues**. Difficulties in these areas have been shown to have general negative effects on the behavior of children with autism while improvements in these pivotal behaviors have very important and positive effects on the functioning of such children. Let us look at each of these pivotal behaviors in more detail.

MOTIVATION

A central problem in the development of children with autism and other severe handicaps is a lack of **motivation** (Churchill, 1971; Dunlap, 1984; Dunlap & Egel, 1982; Dunlap & Koegel, 1980; Koegel,

Dyer, & Bell, 1987; Koegel & Egel, 1979; Koegel & Koegel, 1986; Koegel & Mentis, 1985; MacMillan, 1971). In fact, children with autism are infamous for their lack of motivation to learn new tasks and in general to participate in their social and school environments. Such lack of motivation may be characterized by either temper tantrums, crying, noncompliance, inattention, fidgeting, staring, attempting to leave the teaching situation, or lethargy (e.g. Koegel & Egel, 1979). We do not know for certain why such children are so difficult to motivate but perhaps it has something to do with the fact that since they often fail, they have simply learned not to try. Whatever the reason, however, it is obvious that the problem of motivation has to be resolved before we can hope to develop a very effective treatment strategy for these youngsters.

Recent research suggests that motivation may be increased leading to a dramatic effect upon the children's learning (Koegel, O'Dell, & Dunlap, in press). In 1987, Koegel, O'Dell and Koegel developed a program incorporating motivational techniques and functional language use. It is designed to be used in the natural environment and so it is ideally suited to home use. Laski, Charlop, and Schreibman (1988) successfully taught parents to use these techniques to significantly increase and improve the speech of their children. The major purpose of these techniques is to improve the pivotal behavior of motivation. Obviously a motivated child tries harder, is more interested in the educational situation, and is more likely to use learned behaviors in other situations.

RESPONSIVITY TO MULTIPLE CUES

The other major pivotal behavior of interest is **responsivity to multiple cues**. A great deal of research over the years has identified a specific attentional characteristic present in many children with autism. This characteristic has been called "stimulus overselectivity" and it involves the failure to utilize all of the important cues in an educational setting (cf. Lovaas, Koegel, & Schreibman, 1979; Schreibman, 1988, for reviews of this research). To give an example, in an early experiment children with autism were taught a task involving many component cues (i.e. light, sound, and tactile cues). Subsequent testing on the individual component cues indicated that the children had learned about only one of the cues. This is in contrast to normal children who had learned about each of the single cues. What this means is that the child with autism typically responds to too few of the cues in his/her environment and this seriously interferes with learning. For example, let's say

a teacher points to a picture of a dog and says "dog". If the child with autism looks at the picture but does not "hear" the spoken word, he or she will not learn this association. Similarly, if the child hears the spoken word but does not attend to the picture, he/she will not learn the label. Thus it is apparent that this attentional deficit can and does have very serious negative effects on the learning of such children. In fact, research has implicated stimulus overselectivity in the failure of these children to learn new behaviors, generalize learned behaviors, be able to learn from typical educational procedures (such as prompts), and to engage in social behaviors. It is apparent that remediating this attentional deficit would have a widespread positive effect on the learning abilities of these children. It therefore qualifies as an important pivotal behavior (Koegel & Schreibman, 1977; Schreibman, Charlop, & Koegel, 1982).

Now that we have introduced the pivotal behaviors to be taught it is time to focus on the specifics of how to teach these behaviors. Table 1 on the following page provides an overview of the program that may be useful for you to refer back to once you have read the entire manual. The manual describes the various components involved in teaching the pivotal behaviors along with several examples (good and poor) to help make the procedures clear.

Table 1. **Points to Remember**

I. The Question/Instruction/Opportunity to Respond should:
   1. Be clear, uninterrupted, and appropriate to the task.
   2. Be interspersed with maintenance tasks.
   3. Be chosen by the child.
   4. Include multiple components.

II. Reinforcers should be:
   5. Contingent upon the behavior.
   6. Administered following any attempts to respond.
   7. Related to the desired behavior.

STRUCTURING THE LEARNING SITUATION

There is a very basic, and simple structure to the learning situation. As an overview, it is important to keep in mind that interactions can be viewed as having the following general format:

1. The parent or teacher presents to the child an instruction, question, or other opportunity* to respond.

2. The child responds.

3. The parent or teacher provides some consequences to the child depending on the child's response.

As examples of such an interaction let us consider the following:

John is happily playing outside when the weather begins to get chilly and he becomes cold. His mother tells him to put on his red sweater (instruction). He goes to his room and gets the sweater and puts it on (child responds). Now he can comfortably go back to his play outside (consequence).

John's mother picks up his favorite ball and asks "Do you want to bounce the ball?" (question). John looks up and says "Want bounce ball" (child responds). His mother says, "Great, let's play" and gives him the ball which he happily bounces (consequence).

John's mother notes his interest in the foods as she prepares dinner. She makes sure a few of his favorite edibles are within his reach (opportunity to respond). He reaches for an apple and says "appo" (child responds). John's mother gives him the apple (consequence).

*Opportunities to respond that are not accompanied by a question or instruction lead to speech that we call spontaneous. Since we want the child to learn to speak on his/her own we particularly want to encourage the child's spontaneous speech. It is important to recognize the child's spontaneous attempts to use speech and to treat these responses just as we would the speech following an specific question or instruction.

SPECIFICS OF THE PROCEDURE

PRESENTING THE QUESTION/INSTRUCTION/OPPORTUNITY TO RESPOND: POINTS TO REMEMBER

Point #1 The question/instruction/opportunity should be clear, appropriate to the task, uninterrupted, and the child must be attending.

Point #2 Maintenance tasks (tasks the child already can perform) should be interspersed with acquisition (new) tasks.
Point #3 To a large extent, tasks should be chosen by the child.
Point #4 The instruction/question should include multiple components.

Let us examine each of these points in detail:

Point #1

When presenting the child with a question, instruction, or opportunity to respond, it is important to first make certain to have the child's attention. Obviously the child will learn little or nothing if he/she is not paying attention. The child should not be looking away from the parent, should not be engaging in self-stimulatory behavior, or tantrumming. The child should be attending to the task at hand. Once the child is attending, the parent should give an instruction that is clear and appropriate to what the child is doing at the time. Examine the following examples of good and poor instructions.

EXAMPLES

A: **GOOD**

It is 5:00 in the afternoon and Becky and her son Robbie are in the kitchen while Becky prepares his favorite dinner, spaghetti. She would like Robbie to help set the table. First, she needs to attract his attention. She approaches him, touches him, and says "Robbie." She ensures eye contact and then says, "Put the forks on the table, please." Then they sit down and begin eating.

COMMENT

Note that first Becky made sure that Robbie was paying attention by touching him and making eye contact. The instruction, "Put the forks on the table, please" was brief, to the point and clear. And finally, note that the instruction was entirely appropriate to the task as Becky simply wanted Robbie to put the forks on the table so they could eat. Now contrast this example with the following poor example.

A: **POOR**

It is 5:00 in the afternoon and Becky and her son Robbie are in the kitchen while Becky prepares a spaghetti dinner. She would

like Robbie to set the table. She calls to Robbie from across the room and says, "Is the table ready for dinner?"

COMMENT

Notice that in this example, Becky does not ensure that Robbie is paying attention to her. By calling to him from across the room, she cannot be sure that he has understood, or even heard the instruction. Also, though the instruction is somewhat appropriate to the task, it is not clear. It is very difficult for the child to determine what the correct response would be. A brief, direct instruction is much more likely to be understood and carried out than a long and confusing one.

B: GOOD

Carol and her autistic brother Mark are at the park with their parents. While sitting at the picnic table Mark begins grabbing for the juice. Carol holds his hand back and asks, "What do you want to drink?" He says, "juice" and he is given the juice.

COMMENT

In this example, Carol asks a good, clear question. What is important to note is that before asking the question, she makes sure that Mark is attending to her by first interrupting his interfering activity (grabbing the juice).

B: POOR

Carol and her autistic brother Mark are at the park with their parents. Carol sets out the food and Mark grabs at the juice. Carol wants to find out what Mark wants to drink. As she pulls milk, juice, and soda out of a grocery bag, she calls over her shoulder to Mark, "Mark I brought lots of yummy drinks. I brought juice, soda, and milk. What can I get for you?" Mark ignores her and continues grabbing for the juice.

COMMENT

In contrast to the above GOOD example, here Carol does not ensure that Mark is attending, and as a consequence, he continues to grab the juice and ignores her. Also, her question is long and confusing rather than brief and to the point. Given these circumstances, it is not very surprising that Mark does not respond to Carol's question.

C: **GOOD**

Paul is watching his sister Susan for the afternoon. Susan goes to the door to the yard and repeatedly bangs the glass, unable to open the door to go outside. Paul notices the opportunity to encourage Susan to ask for what she wants. He approaches Susan, holds her hands and says, "Listen to me." Susan looks at Paul and he says, "Do you want to go out?" Susan says "Out." Paul says, "Good job, Susan!" and goes out with her to the yard to play.

COMMENT

In this example, notice how careful Paul is to get Susan's attention. He holds her hands to keep her from engaging in a distracting and potentially harmful behavior while he is talking to her and he always makes sure that she is attending when he gives an instruction. Also notice that his instruction is brief, clear and to the point.

C: **POOR**

Paul is watching his sister Susan for the afternoon. Susan goes to the door to the yard and repeatedly bangs the glass, unable to open the door to go outside. Paul calls to Susan from across the next room while he plays a TV video game: "Susan, what do you want." Getting no response, he calls out again, "Susan do you want to go outside?" Susan continues to bang the glass.

COMMENT

Here we see again how essential it is to make sure the child is attending. By calling from the next room while he himself is busy with an activity, Paul is unable to evoke a response from Susan. Susan continues to bang on the window.

EXERCISES

Write an example of a clear instruction that would be appropriate for the child that you are working with.

_____

_____

_____

Now write an example of an unclear instruction that an untrained person might use.

Point #2

When organizing the child's learning environment it is important to intersperse **maintenance tasks** (i.e. tasks the child has already mastered) with new and more challenging tasks. By doing this the child's motivation and self-confidence should be increased and maintained, enabling him/her to tackle novel tasks while still being highly successful overall. This allows the child to consistently add to his/her behavioral repertoire while being motivated. This is in contrast with a procedure which just drills the child on new, more difficult tasks, that may lead only to frustration and a loss of motivation. Again, look at the following examples.

EXAMPLES

A: GOOD

James has already learned to identify numbers and now his mother Marcia thinks it would be a good time for him to learn his own telephone number (555-4713). Since she knows that James likes to talk to his sister, Denise, she figures he would like to use the phone to talk to her. After school she picks up James and says, "Let's call Denise." They go to the office

phone and Marcia dials 555-471... and asks James, "What's this number?" as she points to the 3. He says, "three" (maintenance task) and then is allowed to push the number pad. The phone rings and Denise picks it up and James can talk to her. Next, Marcia says, "What's your phone number 555-471..." and prompts James to say "three" (acquisition task). When he says it, he gets to dial the last number and talk to Denise. Next Marcia dials 555-47... and points to the 1 and says, "What number is this?" He says, "one" and gets to push the 1, then the 3, and talk to Denise. Marcia next says, "What's your phone number 555-47..." and so on until James can say the numbers in his own phone number and dial the phone.

COMMENT

Here Marcia intersperses the maintenance task of naming numbers with the acquisition task of learning his own phone number combination. Note that the brief conversation with Denise was also a pleasant maintenance task. Also in lengthy tasks such as this one it might be desirable to spread the trials over several days. In this way, Marcia can teach James some important skills while still increasing his chances for success and hence maintaining his motivation. See the example below for a contrasting situation..

A: **POOR**

James has already learned to identify numbers and now his mother Marcia would like him to learn his own telephone number. She says, "Your phone number is 555-4713. Can you say that? Say 5-5-5-4-7-1-3." James says, "1-3" and Marcia says, "7-1-3." This continues until James gets frustrated, and begins to bite his fingers. Marcia discontinues the teaching in order to get James to stop biting himself.

COMMENT

Here Marcia continues to drill James on acquisition tasks without interspersing any maintenance tasks. James quickly loses his motivation to continue working on these difficult tasks and begins engaging in a disruptive and self injurious behavior. As a result Marcia feels forced to discontinue the teaching.

B: **GOOD**

Sarah loves flowers and her father John decides to teach her the names of some of her favorites. John decides to use her knowledge of colors to help motivate her to learn the flower names. As they walk in the garden, John points to a rose and says, "What color?" Sarah says, "Red" and is allowed to pick the flower. Next he points to another rose and says, "What kind of flower is this?" and prompts her to say "rose." When she does so she gets to pick the flower. Next John points to a daffodil and asks, "What color?" Sarah says, "Yellow" and gets to pick the daffodil. John then asks, "What kind of flower is this?" while pointing to the daffodil. He prompts Sarah to say "daffodil." When she says it she gets to pick the flower.

COMMENT

Again we see a good example of interspersing maintenance tasks (naming colors) with more difficult acquisition tasks (naming flowers). This example also demonstrates the ease with which this language training can be incorporated into everyday activities making learning fun for both parent and child.

B: **POOR**

Sarah loves flowers and her father John decides to teach her the names of some of her favorites. As they walk in the garden, John points to a rose and asks, "What kind of flower is that?" He prompts her by saying, "Rose." Sarah says, "Rose." John says, "Good girl Sarah!" John points to another rose and asks, "What kind of flower is that?" Sarah says, "Rose." John says, "Good girl Sarah!" and lets her pick the rose. Then he points to a daffodil and asks, "What kind of flower is that?" Sarah says, "Rose." John says, "No, Sarah, that's a daffodil." He points to another daffodil and asks Sarah, "What kind of flower is that?" Sarah says, "Daffodil" and John lets her pick the flower. Then John points to a daisy and asks, "What kind of flower is that?" Sarah begins to whine and fuss.

COMMENT

In this example, John fails to intersperse maintenance tasks with acquisition tasks. As a result, Sarah becomes frustrated and finds the walk through the garden an unpleasant experience.

The following day, when John wants to take Sarah to the park again, she tries to avoid the experience altogether.

C: **GOOD**

Tom is playing ball with his autistic sister Kathy. Kathy can kick the ball very well but has trouble catching it. So Tom starts out playing with Kathy saying, "I'm going to kick the ball" and kicks the ball to her. Then he says, "Now you kick it back Kathy." Kathy says, "I'm going to kick the ball" and kicks it to Tom. Now Tom wants to work on having Kathy catch the ball. He says, "I'm going to throw the ball now. What are you going to do?" Kathy says, "I'm going to throw the ball." Tom models the correct response for Kathy by saying, "Almost, I'm going to catch the ball." Kathy says, "I'm going to catch the ball." "Alright!" says Tom. "Here it comes!" He throws the ball to Kathy and she drops it. "That was pretty good", says Tom. "Now you throw it. What are you going to do?" Kathy says, "I'm going to throw the ball" and throws it nicely to Tom. Tom compliments her and goes back to kicking the ball twice more before he works on throwing it to Kathy again.

COMMENT

In this example, Tom uses the principle of interspersing maintenance tasks to work on a motor skill as well as a language skill. He alternates having Kathy kick the ball with having her catch the ball, so that she doesn't get frustrated and will continue to play. At the same time, Tom remains conscientious about interspersing verbal maintenance tasks with verbal tasks that she has not yet acquired.

C: **POOR**

Tom is playing ball with his autistic sister Kathy, an activity she enjoys. Kathy can kick the ball very well but has trouble catching it. So Tom wants to work on having Kathy catch the ball. He says, "I'm going to throw the ball now. What are you going to do?" Kathy says, "I'm going to catch the ball." "Alright!" says Tom. "Here it comes!" He throws the ball to Kathy and she drops it. "You dropped it", says Tom. He gets the ball then says, "I'm going to throw the ball now. You catch it." Kathy gets ready, Tom throws the ball, and Kathy drops it again. "Let's try it again, Kathy," says Tom. He tries throwing

the ball to Kathy several more times, but she is still unable to catch it. Now both Tom and Kathy are frustrated and they go back into the house. The next day, Tom asks Kathy if she wants to play ball again and Kathy says "no."

COMMENT

In this example, Tom only works on the new task of catching the ball. Eventually both get frustrated and Kathy completely loses interest in playing ball again. Notice also that Tom does most of the talking in this interaction. In doing so, he misses out on a great opportunity to work on language with Kathy in a fun, natural setting.

EXERCISES

Describe an instance where you could intersperse a maintenance task with an acquisition task for the child you are working with.

_____

_____

_____

_____

_____

Now describe a situation where you may not have interspersed a maintenance task with an acquisition task.

_____

_____

_____

_____

_____

Point #3

Another strategy likely to greatly enhance the child's motivation to participate in learning activities is to allow him/her to have a role in choosing the task or topic of conversation to be used in the teaching interaction. Just as any of us would be more motivated or interested in reading a book on a topic we enjoy, autistic children might be expected to be more motivated and interested in interacting with toys or subjects they enjoy. We call this **shared control** and it allows the child to have a great deal of control over the teaching interaction. Thus the child might choose a toy to play with (and thereby talk about) or the child might wish to terminate an activity by saying "no more" or "put car away", etc. Whenever possible the parent should comply with the child's wishes so that the child will learn that language results in desirable changes in the environment. This should serve to make language important to the child, as it is with normal children, because it allows one to successfully communicate their wishes.

It is important, and probably somewhat of a relief for the parent, to know that it is not always possible to let the child have total control. Under no circumstances should the child be allowed to engage in an activity that is hazardous (e.g. aggression, self-injury) or unacceptable because it is inappropriate (e.g. self-stimulation, compulsive rituals). In these circumstances the parent must assume control until the child is able to assume appropriate control. With a little practice and experience one becomes quite skilled at redirecting the child's attention and interest. This becomes progressively easier as the child's motivation to learn increases.

Also included in shared control is **turn taking**. Turn taking involves a give and take interaction between the child and therapist that takes place while they are involved with the activity the child has chosen. Thus if a child chooses a car to play with, the child and parent can take turns rolling, describing, and racing the car. Turn taking allows the parent to provide appropriate language models for the child to imitate and for the child to learn the give-and-take of social interactions.

EXAMPLES:

A: **GOOD**

Roger wants Kent to read him a bedtime story, a favorite nightly routine for both. Kent holds out three books and says to Roger, "Which story shall I read tonight?" Roger points to a Sesame Street book. "OK," says Kent. "I'll read that one." He holds

out the book and looks at Roger. "Open the book," says Roger. Kent opens the book. "Look," says Kent. "There's Big Bird in front of the house. What do you see?" Roger says, "Oscar trash can." Kent says, "I see Oscar in the trash can." Roger says, "I see Oscar in the trash can." "Good boy!", says Kent. "What color is Big Bird?" "Yellow!" Roger says easily.

COMMENT

In this example, Kent allows Roger to pick the bedtime story. This ensures that this is a story that Roger is interested in and therefore is motivated to talk about. Now that Roger has picked the activity, Kent makes sure that they take turns talking about the book. Also notice that Kent makes sure to intersperse maintenance verbalizations (naming colors, "Open the book") with more difficult ones to keep Roger's motivation high.

A: **POOR**

Kent wants to read Roger a bedtime story. Kent asks Roger what he wants to read. Roger says, "Sesame Street." Kent says, "No, we read that last night. Let's read 'Peter Pan.'" Kent begins to read. Roger pays attention for a short while but then begins to bang his head against the wall. Kent asks, "Roger, don't you like this story?" Roger does not respond, but continues to bang his head.

COMMENT

Here we see Kent picking a story that he likes rather than one that Roger likes. In doing so, Kent cannot be sure that Roger is interested in this book at this time, and it is little wonder that Roger begins to engage in self-injurious behavior. Also notice that as Kent reads the book to Roger, he misses out on many opportunities to encourage Roger to talk.

B: **GOOD**

Lori is looking after her brother Ron for the afternoon. When she has Ron's attention, she asks him, "Ron, do you want to play with a toy, or do you want to eat?" Ron answers, "play." "OK," says Lori. "You pick a toy." Ron picks out a toy bus and says, "bus." "Alright!", says Lori, and she lets him push the bus. "put away," says Ron. "OK," Lori says. Ron puts the

bus away and says, "cookie." Lori says, "OK, let's go down to the kitchen."

COMMENT

Notice how Lori continually allows Ron to have control over the choice of activity. Ron chooses between toys and food, then chooses which toy to play with, and even how long he wants to play with the specific toy. By having a good deal of control, Ron is highly motivated to talk because he is talking about activities or objects that interest him. But also notice that by letting Ron choose from a select set of activities that she has chosen, Lori retains overall control of the situation.

B: **POOR**

Lori is looking after her brother Ron for the afternoon. "Let's eat, Ron," she says, and goes to the refrigerator. "play," says Ron. "Not now," says Lori. "There are tuna sandwiches and bologna sandwiches in here. Let's have tuna." She serves Ron a tuna sandwich. When they finish eating lunch, Lori says, "OK Ron, let's play with the piano. I like this toy piano." Lisa plays with the piano and Ron goes off in a corner with a toy bus and plays by himself.

COMMENT

Here Lori misses many opportunities to give Ron some choice. She could have let Ron choose between eating and playing, what to eat, and what toy to play with. Instead Ron is involved in activities that do not interest him and so is completely unmotivated to talk about these activities or even to involve himself in them.

C: **GOOD**

It is 5:00 pm and Joel and his daughter Barbara are reading a book. Barbara has chosen the story of Snow White. "I want to open the book," says Barbara. "OK," Joel says, and lets Barbara open the book. Barbara says, "I want a cookie." Joel looks at his watch and says, "No, Barbara. It's almost time for dinner. Do you want to read some more?" "Yes," says Barbara, and they continue.

COMMENT

This example illustrates that the child should have a good deal of control — what book to read, for how long, etc. —but not complete control. Though Barbara asked very nicely for a cookie, Joel was careful to uphold the family rule of no snacks before dinner.

C: **POOR**

It is 5:00 pm and Joel and his daughter Barbara are reading a book. Barbara has chosen Snow White. "I want to open the book," says Barbara. "OK," Joel says and lets Barbara open the book. Barbara immediately turns to a page with the wicked witch and says "See witch!" Joel says "That's right." and turns the page. Barbara says "See witch!" and goes back to the witch picture. Joel repeatedly tries to proceed but Barbara will only say "See witch!" and turn back to the picture.

COMMENT

This example illustrates a situation where the parent does not want to allow the child to have complete control--when the child's behavior is compulsive and inappropriate. Here Barbara is focussing on one thing (the witch) to the exclusion of anything else. Her behavior is repetitive, noncreative, and compulsive. It is easy to see that in such a situation the training session does not proceed.

D: **GOOD**

Vicky and her daughter Sheila are at the park with their family. Vicky shows Sheila the box of sporting equipment and asks her, "What do you want?" Sheila points to a blue ball and takes it out of the box. Then she starts to roll the ball to Vicky. Vicky stops her and says, "Roll." Sheila says, "Ro." "Good girl, Sheila!" Vicky says, and lets her roll the ball. Vicky catches the ball and says, "Now it's my turn. Roll." Vicky rolls the ball to Sheila.

COMMENT

Notice that in this example, Vicky lets Sheila choose which toy she wants to play with. Once the toy is chosen, however, Vicky and Sheila take turns rolling the ball.

D: **POOR**

Vicky and her daughter Sheila are at the park with their family. Vicky shows Sheila the box of sporting equipment and asks her, "What do you want?" Sheila points to a blue ball and takes it out of the box. Then she starts to roll the ball to Vicky. Vicky stops her and says "Roll." Sheila says "Ro." "Good girl, Sheila!" Vicky says, and lets her roll the ball. Vicky catches the ball, rolls it back to Sheila and says, "Do it again."

COMMENT

Notice in this example that Vicky misses an opportunity to take a turn and thereby misses an opportunity to model appropriate speech.

EXERCISES

Identify an instance where the child you are working with could have a role in choosing the task or topic of conversation.

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Now write an example where there would be no shared control between you and the child you are working with.

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Point #4

While we have been describing specific procedures that lead to increased motivation for the child, it is also important to structure the learning environment in such a way as to increase the child's responsivity to multiple cues. We know that the best and most efficient way to teach these children to utilize a wider range of cues or components in their learning environment is to choose instructions and tasks that require the child to use multiple cues. By multiple cues, or multiple components, we mean that the child is aware of, and responds to, two or more units within the environment (e.g. "red pen" indicates the red pen, but not the red pencil or the blue pen — all of which are in the immediate environment). Research indicates that if the child is repeatedly exposed to this type of instruction, as opposed to a single-cue instruction such as "pen" where any pen in the environment will do, the child eventually learns to be more responsive. This increase in responsivity seems to be extremely important for the child's ability to effectively utilize the vast number of cues present in the everyday learning environment. Pay particular attention to the following examples so that you might notice the difference between single-cue and multiple-cue tasks.

EXAMPLES

A: **GOOD**

It's 4:00 in the afternoon and Robbie is eagerly getting ready for his swimming class. Yesterday, Becky bought Robbie a new blue swim suit to replace his old blue suit. Becky says to him, "Robbie, go put on your new blue swim suit."

COMMENT

In this example, Becky takes advantage of Robbie's having two blue suits to encourage him to make a discrimination. She asks him to put on his new blue suit rather than just a blue suit or any older suit, forcing him to discriminate blue from some other color and his new suit from his old one.

A: **POOR**

It's 4:00 in the afternoon and Robbie is getting ready for his swimming class. Becky says to him, "Robbie, go put on a bathing suit."

COMMENT

Here we see that Becky misses an opportunity to encourage Robbie to make a complex discrimination. In this situation, Robbie is perfectly correct to put on any suit — new, blue or otherwise.

B: **GOOD**

Eve likes to play games outside with her sister Sally. Sally gets out the equipment box and notices that there is an orange ball, a red ball, a red jump rope and a white jump rope. She says to Eve, "Eve, get the red ball."

COMMENT

In this example, Sally does a good job of setting up a complex discrimination for her sister. Getting the red ball will mean discriminating it from the red jump rope and the orange ball.

B: **POOR**

Sally wants to play games outside with her sister Eve. Sally reaches into the equipment box, grabs a ball and goes outside with Eve to play.

COMMENT

Here again, we see a missed opportunity to elicit a multiple component response.

C: **GOOD**

Peter is finishing his bath. When he gets out of the bathtub he is cold and looks for a towel. The towel rack contains yellow hand towels, yellow bath towels, and green bath towels. His mother says, "Take a yellow bath towel." Peter does and wraps the towel warmly around himself.

COMMENT

Here Peter's mother takes advantage of a very natural learning situation. Again notice that by asking for a yellow bath towel, Peter must attend to both the color and the type of towel.

C: **POOR**

Peter is finishing his bath. When he gets out of the bathtub he is cold and looks for a towel. The towel rack contains many

different towels. His mother says, "Get a towel" which Peter does.

COMMENT

In contrast to the above **GOOD** example, here Peter's mother is only encouraging him to attend to one component, a towel. She misses out on the opportunity to have him attend to both towel type and color.

D: **GOOD**

Lyle's family is having a picnic. On the table are three bottles, orange juice, grape juice and orange soda. His son Ben says, "Juice." Lyle points to the bottles and says, "What kind of juice?" Ben says, "Grape juice."

COMMENT

Here, notice how Lyle encourages Ben to discriminate between the two kinds of juice. For a contrasting situation, see the example below.

D: **POOR**

Lyle's family is having a picnic. On the table are three bottles, orange juice, grape juice and orange soda. Lyle knows that Ben likes juice so he pours him a glass of grape juice and hands it to him.

COMMENT

In this example, Lyle does not encourage Ben to use language at all, nor does he encourage Ben to attend to the multiple components in the situation (juice or soda and type of juice).

EXERCISES

Write an instruction or question that requires the child you are working with to respond to multiple components.

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Now, write an instruction where the child you are working with is not as challenged as she/he could be and does not need to respond to multiple components.

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RESPONSE TO CHILD'S BEHAVIOR: POINTS TO REMEMBER

The above examples all deal with things the parents do before the child is required to respond. Now, in the following section, we will see that the consequences for a child's behavior are also very important. Some important points about the consequences are discussed below.

Point #5 Reinforcement must be contingent upon the behavior.
Point #6 Any goal-directed attempt to respond to the question, instruction, or opportunity should be reinforced.
Point #7 The reinforcer should have a specific relationship to the desired behavior.

Let us examine each of these points in detail.

Point #5

Any response to the child's behavior must be **contingent** upon the correct behavior or attempt. This means that the parent's response must be as immediate as possible after the child's response, must be appropriate to the response, and must be dependent upon the response. Never wait before providing the consequence, never reinforce an

incorrect response, and never fail to reinforce a correct response or attempt. It should be clear to the child that your response depends on his/her behavior. The exception would be if the behavior is well established and thus you would not have to reinforce every occurrence. This would ensure that the behavior would be resistant to nonreinforcement. Again, look at the following examples.

EXAMPLES

A: **GOOD**

John is working on language training with his daughter Janet in the kitchen. Janet has asked for Oreo cookies, her favorite. John holds up an Oreo cookie and asks, "Who has the Oreo cookie?" Janet answers correctly, "You do." The phone begins to ring. John says, "Good, Janet!" and gives her a piece of the cookie. Then he goes to answer the phone.

COMMENT

Notice that in this situation, John reinforces Janet immediately after a correct response, before he answers the telephone. For a different scenario, see the following example.

A: **POOR**

John is working on language training with his daughter Janet in the kitchen. Janet has asked for Oreo cookies. John holds up an Oreo cookie and asks, "Who has the Oreo cookie?" Janet answers correctly, "You do." The phone begins to ring. John says, "Hold on" as he goes to answer the phone. After he hangs up, he says, "That was right, Janet!" and gives her a piece of Oreo cookie.

COMMENT

Notice that in this example, John waits to reinforce Janet for a correct response rather than reinforcing her immediately. By reinforcing Janet after such a long time interval, John is reinforcing all the behaviors that occurred within that interval. So, Janet's specific response, "You do" has no predictable effect on her environment. Reinforcement must be immediately contingent upon the correct response.

B: **GOOD**

David is in the kitchen with his daughter Katie getting a snack. Katie points to a yellow candy and says, "Red candy." David says, "Good try, but it's a yellow candy." Katie points to the yellow candy and says, "Yellow candy." "There you go, Katie!" David says, and he gives Katie the yellow candy.

COMMENT

Notice here that David does not reinforce Katie when she gives an incorrect response. Instead, he prompts her with the correct response and then reinforces her immediately after she gives this correct response.

B: **POOR**

David is in the kitchen with his daughter Katie getting a snack. Katie points to a yellow candy and says, "Red candy." David gives Katie a piece of the yellow candy.

COMMENT

In this example, notice that David reinforces an incorrect response. Katie will have a hard time learning the correct names for colors if she is continually reinforced for labelling yellow candy as red.

C: **GOOD**

Marilyn is blowing bubbles with her son Gary when he suddenly says, "Music!" while pointing to his toy piano. Marilyn says, "Good talking Gary," and she gives Gary his toy piano.

COMMENT

Here Marilyn does a good job of reinforcing Gary immediately for some good talking. See below for a contrasting example.

C: **POOR**

Marilyn is blowing bubbles with her son Gary when he suddenly says, "Music!" while pointing to his toy piano. Marilyn says, "Right now we're blowing bubbles. Can you say bubbles?"

COMMENT

Here Marilyn neglects to reinforce Gary for a good vocalization. If she continually fails to reinforce Gary for good talking, he will learn that his talking has no effect on his environment and will talk less.

D: **GOOD**

Brian is in the kitchen with his sister Bridget. He puts a bowl of grapes on the table and Bridget says, "I want grapes." As Brian is about to give Bridget a grape, she bangs her head with her fist. Brian says, "Stop that Bridget!" Bridget settles down and Brian says, "What do you want?" Bridget says, "I want grapes." Brian gives her some grapes.

COMMENT

Notice that Brian is very careful here not to reinforce Bridget for a disruptive behavior. Instead, he makes her repeat her request — "I want grapes" — so that he will be reinforcing her only for a correct verbalization.

D: **POOR**

Brian is in the kitchen with his sister Bridget. He puts a bowl of grapes on the table and Bridget says, "I want grapes." As Brian gives Bridget some grapes, she bangs her head with her fist.

COMMENT

In this example, Brian is inadvertently reinforcing Bridget for her disruptive behavior. He should have taken away the grapes and started again (see above **GOOD** example).

EXERCISES

Describe an instance where you may have used contingent reinforcement.

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Describe an instance where you may not have reinforced a correct response or attempt.

Point #6

Any goal-directed attempt to respond to questions, instructions, or opportunities should be reinforced. This means that we want to be certain to encourage the child to try by reinforcing attempts rather than risk discouraging the child by requiring only correct responses (which at the initial stages of training may be few and far between). Recent research has shown that autistic children's motivation to respond can be significantly enhanced if the child is rewarded for any reasonable attempt to respond even if the response is not completely correct. While the response does not necessarily have to be correct it does, however, have to be a reasonable attempt. Thus the child must be directing his/her attention to the task, the attempt has to be related to the task, and it has to be emitted with a reasonable amount of effort. For example, if a child has consistently referred to a ball with "ball", or "ba", we would not reinforce a whispered or mumbled "ball" sound or other obviously inadequate attempts. We know that the child has consistently done better in the past. The main thing to remember is that we want the child to be encouraged, motivated, and to continue to try.

EXAMPLES

A: **GOOD**

Dawn wants to teach her sister Lisa to talk more when she plays with her toys. Since Lisa enjoys assembling puzzles, Dawn wants to teach Lisa to say "put in" for a puzzle piece. Dawn gives Lisa a puzzle piece and the rest of the puzzle. As Lisa goes to put in the puzzle piece, Dawn holds the piece and models for Lisa, "Put in." Lisa says nothing and tries to put the puzzle piece in. Dawn says, "Lisa, listen to me." When Lisa is looking, Dawn models again, "Put in." Lisa says, "Put," and Dawn says, "Good!" and lets her put in the puzzle piece.

COMMENT

Notice in this example that Dawn accepts the response "put" and lets Lisa put in the puzzle piece. By reinforcing this attempt from Lisa, Dawn is ensuring that Lisa is successful and that she will be motivated to continue to work on the task in the future. Note that Lisa was reinforced only when she made a reasonable effort. When she said nothing, she was not reinforced.

A: **POOR**

Dawn wants to teach her sister Lisa to talk more when she plays with her toys. Dawn wants to teach Lisa to say "put in" for a puzzle piece. Dawn gives Lisa a puzzle piece and the rest of the puzzle. As Lisa goes to put in the puzzle piece, Dawn holds the piece and models for Lisa, "Put in." Lisa says nothing and tries to put the puzzle piece in. Dawn says, "Lisa, look at me." When Lisa is looking, Dawn models again, "Put in." Lisa says, "Put," and Dawn says, "Listen Lisa. Put in." Lisa throws the puzzle piece across the room.

COMMENT

In this example, we see that Dawn does not reinforce Lisa's reasonable attempts. Unable to provide a perfect response, Lisa is frustrated, loses interest in the puzzle, and becomes disruptive.

B: **GOOD**

Mike is reading a book with his son Greg. Greg loves animal books and is eager to look at them. They turn to a page with a

blue dolphin swimming through a hoop. Mike asks Greg, "What is the dolphin doing?" Greg says, pointing to the dolphin, "Blue." That's right. He's blue," Mike says. "What's he doing? Is he swimming?" "Swimming," says Greg. "Good job, Greg. What is he doing?" Greg says, "He's swimming." "Alright!", Mike says. "Now let's see what's on the next page."

COMMENT

Here, Mike reinforces Greg's attempt at describing the dolphin. Although Greg did not label the verb correctly, he did correctly label the color of the dolphin. By reinforcing Greg for the correct color response, Mike encourages Greg to remain motivated to learn the correct verb labels. Notice that Mike asks the question, "What's he doing?", a second time (after he has prompted the correct response) to ensure that Mike has learned the verb. Most important, notice that Mike reinforces Greg for every attempt in the interaction.

B: **POOR**

Mike is reading a book with his son Greg. They turn to a page with a blue dolphin swimming through a hoop. Mike asks Greg, "What is the dolphin doing?" Greg says, pointing to the dolphin, "Blue." Mike says, "No, Greg. What's the dolphin doing?" Mike again says, "Blue." "No, Greg. Not blue. Is he swimming?" asks Mike. Greg is now trying to turn the next page of the book.

COMMENT

Here Mike insists on the correct answer rather than rewarding Greg's attempts. We can see that Greg becomes frustrated and tries to end the interaction.

C: **GOOD**

Nancy and her son Ron are at the park on a very hot day. Ron points to a drinking fountain and says, "I want wada." Nancy says, "That was good talking, Ron. Let's get you a drink." Nancy takes Ron to the drinking fountain. After they have a drink, Ron says, "I want ba." "Ball?" asks Nancy. "OK, let's get a ball."

COMMENT

Notice here that by reinforcing Ron's attempt to ask for water, Nancy has encouraged him to continue asking for what he wants. See the example below for a contrasting situation.

C: **POOR**

Nancy and her son Ron are at the park on a very hot day. Ron points to a drinking fountain and says, "I want wada." Nancy says, "Say it right Ron. I want water." Ron says, "Wada." Nancy say , "Say the whole thing right. I want water." Ron says, "I want water." "Very good," says Nancy. "Let's get you some water." After their drink, Nancy asks Ron, "What do you want to do now?" Ron says nothing.

COMMENT

In this example, Nancy fails to reinforce Ron's attempts at language and drills him on complete phrases. For Ron, asking for things becomes a difficult task. As a consequence, he loses his motivation and stops asking for the things he wants.

EXERCISES

Write an example of reinforcing a goal-directed attempt for the child you are working with.

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Now, write an example of not reinforcing a goal-directed attempt made by the child.

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Point #7

Besides the timing of the reinforcer and the nature of the response, the type of reinforcer given is extremely important. All reinforcers should have a direct relationship to the desired behavior. We refer to this as a **direct response-reinforcer relationship** and it basically means that the reinforcer should be a natural consequence for the behavior. Thus if a child says "car" this verbal response might be reinforced with the opportunity to play with the car as opposed to being reinforced with a bite of candy. Rolling a car after saying "car" is a very normal, natural consequence and is certainly directly related to the verbalization. In contrast, being fed a piece of candy is not directly related to the word "car". The main advantage of a direct reinforcer is that it is the type of consequence the child will normally receive in the natural environment and thus we may expect the speech to generalize to this environment. We learn to use language to manipulate the environment and this language is maintained and strengthened because it is successful for that purpose. We learn to say "Help me, please", for example, because it usually leads to assistance. The fact that it does makes us likely to use this language appropriately again on future occasions. However, if we say "Help me, please" and someone says "good talking" and maybe gives us candy, it is unlikely that we will learn to use this language appropriately in the natural environment. (It is also unlikely that someone will be following us around with pieces of candy!). Pay particular attention to the following examples, contrasting direct and indirect reinforcement.

EXAMPLES

A: **GOOD**

Gary wants to work on teaching colors to his daughter Donna. Donna loves to eat jelly beans. Gary puts out several jelly beans of different colors. He holds up a red jelly bean and asks Donna, "What color is this?" "Red," says Donna. "Very

good," says Gary, and he gives Donna a piece of the red jelly bean. Then he holds up a green jelly bean and asks, "What color is this?" "Green," says Donna. "Very good, Donna", Gary says. And he gives her a piece of the green jelly bean.

COMMENT

In this example, it is perfectly appropriate to reinforce Donna with jelly beans because the candy is directly related to the task — they are talking about jelly beans. If she says "red" she gets a red jelly bean. If she says "green" she gets a green jelly bean, and so on. See the following example for a contrasting situation.

A: **POOR**

Gary wants to work on teaching colors to his daughter Donna. Donna loves to play with blocks. Gary puts out several wooden blocks of different colors. He holds up a red block and asks Donna, "What color is this?" "Red," says Donna. "Very good," says Gary, and he gives Donna a jelly bean.

COMMENT

In this example, the jelly bean is not a natural reinforcer as Donna has been talking about colors and blocks. It would be much better for Donna to be reinforced with the opportunity to play with the blocks than to be reinforced with a jelly bean.

B: **GOOD**

Joel wants to teach his son Ricky how to use money. On a trip to Ricky's favorite ice cream restaurant, Joel asks Ricky what he wants to buy. Ricky points to the picture of an ice cream cone on the menu and says, "Nilla!" Joel says, "OK, it costs 50¢." He holds out some change and says, "Show me 50¢." After some prompting, Ricky points to 2 quarters and receives the ice cream.

COMMENT

Here, Joel does a nice job of incorporating the money task into a very natural interaction. Ricky earns his reinforcer (ice cream) as a direct consequence of paying for it. (Note also how Joel interspersed the maintenance task of asking Ricky what he wanted to buy.)

B: **POOR**

Joel wants to teach his son Ricky how to use money. He puts some change on the table and asks Ricky, "Show me 25¢." After some prompting Ricky points to two dimes and a nickel. Joel says, "Good boy! Now you can watch television."

COMMENT

Note how in this example an indirect consequence was given. Watching television is unrelated to the task of counting money.

C: **GOOD**

Carol and her daughter Marcia are in the waiting room at the pediatrician's office. Carol has crayons and coloring books and several toys with her in a large bag. She asks Marcia, "What would you like to play with?" Marcia answers, "Crayons." Carol says, "The crayons are in the bag. What do you have to do?" Marcia says, "I want to open the bag." "Good talking Marcia!" Carol says. Marcia opens the bag and takes out the crayons and begins to draw.

COMMENT

In this example, Marcia has to go into the bag to get to the crayons. So gaining access to the crayons is a very natural and highly rewarding consequence of talking about the bag. See the next example for a contrasting situation.

C: **POOR**

Carol and her daughter Marcia are in the waiting room at the pediatrician's office. Carol has crayons and coloring books and several toys with her in a large bag. She asks Marcia, "What would you like to play with?" Marcia answers, "Crayons." Carol says, "The crayons are in the bag. What do you have to do?" Marcia says, "I want to open the bag." "Good talking Marcia!" Carol says and gives Marcia an M&M.

COMMENT

In this example, the M&M is unrelated to the task of talking about the bag or getting access to the crayons. So in this case, the M&M is not a natural or direct reinforcer. If Marcia had wanted to open the bag to get to an M&M, <u>then</u> the M&M would have been the perfect reinforcer.

EXERCISES

Identify a task for the child you are working with and a possible natural reinforcer for that task.

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Now, identify a reinforcer that does not directly relate to the task chosen above for the child with whom you are working.

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